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NOTES ON THE CAPTURE OF YOUNG SAILFISH AND SWORDFISH IN THE GULF OF MEXICO

Although the broadbill swordfish, *Xiphias gladius* Linnaeus, and the sailfishes, *Istiophorus* sp., are found throughout the warm waters of the world and are much sought-after game fishes, surprisingly little is known concerning their life histories. The following capture records of pre-adult forms taken in the Gulf of Mexico are presented as a contribution to our knowledge of these species.

Early stages of the swordfish are identified readily by referring to a series of excellent papers by Sanzo on the larval forms of this species. Identification of sailfish larvae poses a more difficult problem. As Voss pointed out in his recent paper on sailfish (1953, Bull. Mar. Sci. Gulf and Carib., 3 (3): 206–40), the very young of marlin and spearfish have never been taken to be recognized as such, and extreme care must be exercised to avoid possible confusion. With this possibility in mind, each specimen included in this presentation was compared and checked carefully with texts and figures in available publications on sailfish. Through the courtesy of Jack W. Gehringer, U. S. Fish and Wildlife Service, whose paper on the development of sailfish is now in preparation, they were compared and checked further with known sailfish specimens of similar sizes.

Plankton and dip-net collections made during field work aboard the M/V ALASKA and M/V OREGON, research vessels of the U. S. Fish and Wildlife Service, yielded fifteen larval and one juvenile sailfish, *Istiophorus americanus* (Cuvier), and thirty-two larval swordfish. The term "juvenile" refers to specimens in which metamorphosis into the general adult form has occurred, although several larval characteristics still may be evident. According to available literature, the ALASKA specimens, taken over the period from April 29, 1951, to June 19, 1953, were the first of the very young of these species to be captured in the Gulf of Mexico.

Capture records are given in Table I in chronological order. Standard length (S. L.) measurements are

TABLE I

CAPTURE RECORDS FOR YOUNG SAILFISH AND SWORDFISH

Under "gear", SN = ½-meter silk net, Di = dipnet, MN = metal net

Species	S. L., mm.	Date	Time	Gear	Locality	
					N. Lat. °_′	W. Long. °_′
Sailfish	4.8	4/29/51	0900	SN	23–11	82–24
Sailfish	6.0	8/15/51	1400	SN	26–09	83–50
Sailfish	4.0	8/15/51	1400	SN	26–09	83–50
Swordfish	26.9	5/25/52	1012	Di	27–18	87–30
Swordfish	55.4	5/30/52	0015	Di	26–00	85–15
Sailfish	64.1	5/30/52	0015	Di	26–00	85–15
Swordfish	8.2	6/2/52	0600	MN	27–40	85–05
Swordfish	19.8	2/25/53	1030	MN	25–06	87–30
Sailfish	5.3	6/8/53	1945	MN	26–09	86–34
Sailfish	4.3	6/8/53	1945	MN	26–09	86–34
Sailfish	3.8	6/8/53	1945	MN	26–09	86–34
Sailfish	3.6	6/8/53	1945	MN	26–09	86–34
Swordfish	6.1	6/9/53	0500	MN	27–00	87–30
Sailfish	8.6	6/10/53	2100	MN	27–55	93–38
Sailfish	7.3	6/10/53	2100	MN	27–55	93–38
Sailfish	7.2	6/10/53	2100	MN	27–55	93–38
Sailfish	6.4	6/10/53	2100	MN	27–55	93–38
Sailfish	6.2	6/10/53	2100	MN	27–55	93–38
Sailfish	6.1	6/10/53	2100	MN	27–55	93–38
Sailfish	5.3	6/10/53	2100	MN	27–55	93–38
Sailfish	20–65	8/10 to 9/2/53	...	Di	...†	...†
Swordfish	79.5	5/8/54	Night	Di	26–40	92–00
Swordfish	49.1	5/8/54	Night	Di	26–40	92–00
Swordfish	51.5	5/10/54	Night	Di	24–22	92–00
Swordfish	34.2	5/10/54	Night	Di	24–22	92–00
Swordfish	47.0	5/21/54	Night	Di	20–25	95–45
Swordfish	28.0	5/22/54	Night	Di	21–42	95–35
Swordfish	47.0	5/23/54	Night	Di	22–10	96–20
Swordfish	43.2	5/23/54	Night	Di	22–10	96–20
Swordfish	42.9	5/23/54	Night	Di	22–10	96–20
Swordfish	42.5	5/23/54	Night	Di	22–10	96–20
Swordfish	38.2	5/23/54	Night	Di	22–10	96–20
Swordfish	28.5	5/23/54	Night	Di	22–10	96–20
Swordfish	51.0	5/24/54	Night	Di	22–30	96–57
Swordfish	50.5	5/24/54	Night	Di	22–30	96–57
Swordfish	50.0±*	5/24/54	Night	Di	22–30	96–57
Swordfish	39.5	5/24/54	Night	Di	22–30	96–57
Swordfish	39.0	5/24/54	Night	Di	22–30	96–57
Swordfish	37.3	5/24/54	Night	Di	22–30	96–57
Swordfish	35.0	5/24/54	Night	Di	22–30	96–57
Swordfish	32.5	5/24/54	Night	Di	22–30	96–57
Swordfish	32.5	5/24/54	Night	Di	22–30	96–57
Swordfish	49.5	5/26/54	Night	Di	24–00	96–50
Swordfish	20.2	5/26/54	Night	Di	24–00	96–50
Sailfish	...*	5/26/54	1400	MN	24–30	96–39
Swordfish	43.5	5/27/54	Night	Di	24–54	96–05
Swordfish	38.5	5/27/54	Night	Di	24–54	96–05
Swordfish	32.5	5/27/54	Night	Di	24–54	96–05
Swordfish	?	5/15/53	Night	Di	21–45	81–45

* Specimen mutilated.
† Off Mississippi River delta (see text).

from the tip of the bill to the caudal end of the urostyle. Metal nets used for collection are high-speed plankton samplers (see Fish and Wildlife Service Special Scientific Report: Fisheries, No. 88). All specimens were taken either at, or within, five meters of the surface.

In addition to the foregoing collections, information concerning the capture of approximately 30 juvenile sailfish and one larval swordfish was furnished by Stewart Springer. The juvenile sailfish, ranging in length from about 20 to 65 mm., were taken by dipnet in August and September, 1953, during a cruise of the M/V OREGON, in an area extending from 28°50′ North, 88°50′ West to 29°10′ North, 88°00′ West, about 30 miles east southeast of the Mississippi Delta. The larval swordfish, although not taken in the Gulf of Mexico, was captured in such close proximity that its inclusion in this presentation seems justified.

These capture records strongly indicate that parts of the Gulf of Mexico serve as nursery grounds for sailfish and swordfish. In partial support of this contention, J. L. Baughman found that 17 out of 18 sailfish boated off Port Isabel, Texas, in August, 1940, had ova in all stages of development, and that several females taken later in the season had ova running from them (1941, COPEIA (1): 33–7).

Although adult sailfish are taken regularly in the Gulf of Mexico, only three authentic records exist concerning the presence of swordfish above larval size in this area. On June 17, 1949, a dead specimen, estimated to be 12 to 14 feet in overall length, was found washed up on the beach of Padre Island, Texas, by Charles Urschel, Jr. (Kramer, 1950, COPEIA (1): 65). A five-foot specimen (tip of lower bill to caudal fork) weighing 105 pounds was caught in Barataria Bay, Louisiana, on August 2, 1946, by Richard R. Foster, according to Harvey Bullis, of the U. S. Fish and Wildlife Service. On June 14, 1954, a 39-inch swordfish (tip of upper bill to caudal fork) was taken on a long line from the M/V OREGON, at a depth of ten fathoms, at 27°16′ North latitude, 90°25′ West longitude.—EDGAR L. ARNOLD, JR., *U. S. Fish and Wildlife Service, Galveston, Texas.*